

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 40457WOP00	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. PCT/AU2004/001417	International filing date ( <i>day/month/year</i> ) 15 October 2004	Priority date ( <i>day/month/year</i> ) 16 October 2003
International Patent Classification (IPC) or national classification and IPC Int. Cl. <sup>7</sup> A61L 2/20, 9/015; A01N 59/24; A23L 3/3445; A23B 4/16, 9/22, 7/152		
Applicant BOC LIMITED et al		

This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (*sent to the applicant and to the International Bureau*) a total of sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand 16 August 2005	Date of completion of the report 19 September 2005
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  <b>ROSS OSBORNE</b> Telephone No. (02) 6283 2404

**Box No. I Basis of the report**

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1 (b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- ☒ the international application as originally filed/furnished
- ☐ the description:
- |        |  |
|--------|--|
| pages  | as originally filed/furnished                    |
| pages* | received by this Authority on with the letter of |
| pages* | received by this Authority on with the letter of |
- ☐ the claims:
- |        |   |
|--------|---|
| pages  | as originally filed/furnished                             |
| pages* | as amended (together with any statement) under Article 19 |
| pages* | received by this Authority on with the letter of          |
| pages* | received by this Authority on with the letter of          |
- ☐ the drawings:
- |        |  |
|--------|--|
| pages  | as originally filed/furnished                    |
| pages* | received by this Authority on with the letter of |
| pages* | received by this Authority on with the letter of |
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to the sequence listing (*specify*):

\* If item 4 applies, some or all of those sheets may be marked "superseded."

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims 5-6, 13-14	YES
	Claims 1-4, 7-12, 15-20	NO
Inventive step (IS)	Claims	YES
	Claims 1-20	NO
Industrial applicability (IA)	Claims 1-20	YES
	Claims	NO

## 2. Citations and explanations (Rule 70.7)

D1 WO 1996/001051

D2 US 6047496

D3 US 6047497

D4 US 4889708

**NOVELTY(N) Claims 1-4, 7-12, 15-20**

D1 teaches the use of cyanogen as a pesticide/fumigant mixed with carbon dioxide, optionally as compressed mixtures (see pages 9-10) for a number of reasons including reducing the fire hazard associated with the use of cyanogen (see pages 12-14 and example 45). It is considered that reducing the fire hazard with added CO<sub>2</sub> would, in practice, mean keeping the Cyanogen/CO<sub>2</sub> mixture below its flammability limit and therefore this feature is implicitly disclosed. For these reasons claims 1-4, 7-12 and 15-20 lack novelty.

**INVENTIVE STEP(IS) Claims 1-20**

Claims 1-4, 7-12, 15-20 as above. D1 does not explicitly teach the levels of CO<sub>2</sub> needed, so that in use the cyanogen mixture remains below its flammability limit. However as D1 does teach the use of added CO<sub>2</sub> in air mixtures to reduce the fire hazard risks associated with cyanogen, the matter of the optimal level of CO<sub>2</sub>, such that the fumigant/sterilant remains below its flammability limit (as would be clearly desired when seeking to reduce the fire hazard), is a matter of routine optimization. D1 teaches the use of cyanogen in a minor proportion to the levels of CO<sub>2</sub> as is the case in the current application. Claims 1-20 lack inventive step for these reasons. Alternatively, as the use of CO<sub>2</sub> to overcome problems with flammable fumigants has already been proposed, claims 1-20 lack inventive step in the light of D1 when combined with any of :

D2 which teaches the use of CO<sub>2</sub> in high proportions to inflammable fumigant gases in air mixtures in order to prevent auto-ignition during fumigation and/or

D3 or D4 which teach diluting phosphine fumigants with CO<sub>2</sub> in order to render them non-flammable.